**File Permissions:**

**Permissions are applied on three levels:-**

•Owner or User level

•Group level

•Others level

**Access modes are of three types:-**

•r read only

•w write/edit/delete/append

•x execute/run a command

**Access modes are different on file and directory:**

**Permissions Files Directory**

**r Open the file 'ls' the contents of dir**

**w Write, edit, append, delete file Add/Del/Rename contents of dir**

**x To run a command/shell script To enter into dir using 'cd'**

**# ls - l myfile**

**# ls -ld mydir**

**Filetype+permission, links, owner, group name of owner, size in bytes, date of modification,**

**file name**

**Permission can be set on any file/dir by two methods:-**

**1 Symbolic method (ugo)**

**2 Absolute methods (numbers)**

**1 Symbolic method (ugo):**

•Symbolic mode: General form of symbolic mode is:

**# chmod [who] [+/-/=] [permissions] file**

who 🡪To whom the permissions to be assigned

**User/owner (u); group (g); others (o)**

**Example: -**

**Assigning different permissions to the file (user=rwx, group=rw and others=r)**

#chmod u=rwx,g=rw,o=r ktfile/dirname (where ktfile is the name of the file) here we are giving the dir name also.

# ls -l ktfile

**Assigning full permission to the file i.e. rwx to all**

#chmod ugo=rwx <file name>

# chmod ugo=rwx ktfile/dirname (where ktfile is the name of the file) here we are giving the dir name also.

# ls -l ktfile/dir

**Likewise you can add or remove permissions from any file for anyone (user group or other)**

•**#chmod u+x ktfile (Adding execute permission to user only)**

•**#chmod go-wx ktfile (Removing write and execute permissions from group and other)**

•**#chmod go+wx ktfile (Adding write and execute permissions from group and other)**

•**#chmod go=r ktfile (Giving only read permission to group and other)**

**2 Absolute Method (numbers)**

In Absolute method we use numbers instead of using symbols i.e.

•**Read=4**

•**Write=2**

•**Execute=1**

**Assigning different permissions to the file (user=rwx=4+2+1=7, group=rw=4+2=6 and others=r=4)**

**#chmod 764 ktfile (where 7 means rwx i.e. 4+2+1, rw=6 i.e. 4+2 and 1 indicates x)**

**# chmod 764 ktfile/dir**

**# ls -ls myfile**

**Assigning full permission to the file i.e. rwx to all**

**#chmod 777 ktfile/dir**

**# ls -l ktfile/dir**

**Likewise you can give different permissions according to your requirement**

**Removing all permissions from others**

#chmod 770 ktfile (where **0** indicates **no** permissions)

**Note: All the above permissions and procedure is same for files and directories.**

**Umask:**

When we create any file using touch, cat or vi commands they get created with default file

permissions as stored in umask **(User file creation mask)**.umask is a 4 digit octal number which

tells Unix which of the three permissions are to be denied rather than granted. Umask will

decide that what should be the default permissions for a file and directory when it is created.

**The default umask value is 0022**

**#umask**

**calculation of the deault permissions for file and directory, basing upon the umask value**

**Note:** For a file by default it cannot have the execute permission, so the maximum full

permission for a file at the time of creation can be **666** (i.e. 777 -111 = 666), whereas a directory

can have full permissions i.e. **777**

•**The full permission for the file 666**

•**Minus the umask value -022**

•**The default permission for file is 644 (rw-,r--,r--)**

**# umask**

**# touch test(we are giving any file/dir name)**

**# ls -l myfile/dir**

•**The full permission for the directory 777**

•**Minus the umask value - 022**

•**The default permission for file is 755 (rwx, r-x, r-x)**

**# umask**

**# mkdir mydir**

**# ls -ld mydir**

**Modifying the umask value:**

**#umask 002**

The Modified default Permission for a **file** will be **666-002=664** i.e. **rw,rw,r,** and for the

**directory** it will be **777-002=775** i.e. **rwx,rwx,r-x.**

**# umask**

**0022**

**# umask 002**

**# umask**

**0002**

**Note: Create a file and a directory and check for the default permissions.**